cent particles, do not acquire the oscillatory velocity of light until g_1 has acted for $\frac{1}{2}$ the time of *rotation*. Does this indicate successive vibrations in the directions of three co-ordinate axes? And does the tidal action of the planets contribute to the disturbance from which the vibrations originate? The sun-spot theory, and equations 25, 26, and 27, favor such a hypothesis. The proportionality indicated by (1,)

$$u : v_1 : : g_1 t_1^2 : 2 \pi r_1$$

becomes significant, if we consider that any equatorial particle must move through the distance $2 \pi r_1$ before it returns to the same relative position, and that during the entire series of disturbances, through which it passes in the interval, g_1 is exerting an energy, the resultant of which is equivalent to a fall of $g_1 t_1^2$.

BORING RECORDS FROM THE ANTHRACITE BASIN.

By Mr. P. W. Sheafer.

Record of Lower Boring.	*Nassau Shaft.*	*One mile north of Scranton.*
From Surface below R. Road.	8′ 3″	
Rock,	3′ 0″	11′ 3″
Coal,		1′ 0″
Rock,	1′ 2″	
Sandy Gravel,	4′ 7″	
Slate,	6″	
Rock,	1′ 2″	
Slate,	20′ 3″	
Sand Stone,	8′ 4″	
Light Slate,	4′ 6″	
Dark Slate,	4″	39′ 10″
Coal,		2′ 6″
Dark Slate,	7′ 4″	
Hard Rock,	6″	
Dark Slate,	2′ 1″	9′ 11″
Coal,	3′ 0″	
Slate,	3″	
Coal,	1′ 0″	4′ 3″
Slate,	2′ 1″	
Slate, (hard bands,)	1′ 11″	
Hard Rock,	3′ 6″	
Slate, (hard bands,)	20′ 8″	
Dark Hard Rock,	7′ 1″	
Dark Slate,	10′ 6″	44′ 9″
Coal, pure,	8′ 4″	
Coal, bony,	3″	
Coal, good,	6″	
Coal, bony,	6″	
Coal, good,	11″	10′ 6″
Hard Rock,	1′ 4″	
		128′ 7″

The above is from the journal kept by Wm. Barryman, reported to Mr. P. W. Sheafer, Eng. Mines, Pottsville, in 1857. Rocks dip gently South.

Record of Upper Boring.	*Nassau Coal Company. Scranton, Pa.*		*One mile north of*
From surface,	13′ 00″		
Rock,	12′ 7″		26′ 27″
Coal mixed with Slate,			2′ 0″
Light Rock,	21′ 3″		
Dark Sand,	6″		
Hard Rock,	14′ 1″		35′ 10″
Coal,			1′ 00″
Slate, dark soft,	1′ 0″		
Slate, dark,	1′ 4″		
Rock, light,	12′ 4″		
Slate, dark,	4′ 0″		18′ 6″
Coal,		9″	
Black Slate,		2′ 0″	
Coal (with Slate,)		9″	
Coal, pure,		5′ 6″	9′ 0″
Slate, dark, hard,	10′ 0″		
Rock,	9′ 9″		
Slate,	11′ 0″		30′ 9″
Coal,			1′ 9″
Slate, (hard bands,)	5′ 3″		
Rock,	1′ 0″		
Slate, (hard bands,)	6′ 8″		12′ 11″
Coal,			2′ 8″
Slate, dark hard,	12′ 9″		
Rock, light,	5′ 3″		
Slate, (hard bands,)	3′ 0″		
Rock, hard,	1′ 3″		
Slate bands,	4′ 3″		
Slate and hard bands,	18′ 10″		
Slate, dark,	8′ 7″		
Rock, hard,	3′ 0″		
Rock, light,	9′ 6″		
Slate, dark,	9″		66′ 4″
Coal, pure,			8′ 0″
Slate, dark,	5′ 6″		
Slate, hard, light,	1′ 1″		
Rock, hard,	8″		
Rock, hard, light,	17′ 3″		
Slate, dark,	1′ 0″		25′ 6″
Coal,			3′ 6″
Slate, dark,	1′ 0″		
Slate, light,	6′ 5″		7′ 5″

Coal,		1′ 6″	
Slate, light,		3″	
Coal,		1′ 0″	2′ 9″
Slate, black,	6′ 11″		
Slate, (hard bands,)	8′ 7″		
Slate, dark,	2′ 5″		
Rock, light,	5′ 1″		
Slate, dark,	8′ 8″		
Slate, light,	8′ 6″		
Rock, light,	1′ 0″		
Slate, black,	3′ 11″		
Rock, hard,	7″		
Slate, black,	1′ 8″		47′ 4″
Coal,			10′ 8″
Slate,	6″		
Rock, hard,	10″	(measured on rods)	309′ 3½

Note. Journal kept by Mr. Berryman, and reported to Mr. P. W. Sheafer, in 1857.

Swartz Boring above Dunmore, about N. 78° ¾E. (7,000 feet) from the corners, in Dunmore, near Scranton. By Mr. Stevenson, Jan. 6, 1857, to P. W. Sheafer.

Earth from Surface down,	2′ 0″	
Sand Rock, hard, coarse,	28′ 0″	
Sand Rock, yellow,	18′ 0″	49′ 0″
Coal,		5′ 0″
Sand Rock and Slates,	28′ 0″	
Blue Rock, hard,	11′ 0″	
Slate,	3′ 6″	42′ 6″
Coal,		4′ 2″
Slate,	3′ 6″	
Sand Rock,	19′ 0″	
Blue Rock, hard,	35′ 0″	
Slate,	5′ 0″	62′ 6″
Coal,		4′ 6″
Slate,	21′ 0″	
Blue Rock, hard	2′ 0″	190′ 8″

National Anthracite Company's Cross Section.

Top Rock.					
Slate,	8″				
Bony Coal,	2′ 0″				
Top Bench of Worked Coal,			5′ 6″		
Middle Bench of Coal,			10″		11′ 10″
Bottom Bench of Coal,	1′ 6″	to	2′ 0″		
Bony Coal, rough,	2′ 0″				
Slate,	19′ 0″				

Tolerably Good Top Slate,			
Top Bench of good Coal,		4′ 10″	6′ 1½″
Slate,	6″		
Bottom Bench of Rough Coal,		9½″	

The above is a section of the two beds of Coal in the Lackawanna Coal Basin, 1½ miles west from Scranton, furnished by the boss miner to P. W. Sheafer, March 11, 1857. Opened by two drifts on the South bank of the Lackawanna, where the Coal dips about 5° West.

These Coal were known as the 9 and 11 foot beds.

Stated Meeting, April 16, 1869.

Present, seventeen members.

Dr. George B. Wood, President, in the Chair.

A letter accepting membership was received from J. C. Mill, dated Blackheath Park, March 22, 1869.

Letters acknowledging the receipt of diplomas of membership were received from John Tyndall, dated London, March 20th, and from H. A. Newton, dated Yale College, March 2d, 1869.

Donations for the Library were received from the Royal Academy and Observatory at Turin, the Geological Society and M. Bossange at Paris, the R. Astronomical Society and Mr. Quaritch at London, the Royal Society at Edinburgh, the Portland Society of Natural History, the Rev. J. B. Perry, the Essex Institute and Cambridge Museum, the editors of the Journal of Medical Sciences, Dr. Isaac Lea, J. B. Lippincott & Co., and the Fairmount Park Commissioners of Philadelphia.

Professor Spencer F. Baird, of Washington, was appointed to prepare an obituary notice of the late member, John Cassin, of Philadelphia.

The Committee to which was referred additions to the Memoir of Professor Cope, reported in favor of publication.